"The Times of Our Lives: Active Ageing and the Redistribution of Work in Europe"
Population Europe Event
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Challenges and Possibilities for Pension and Retirement Systems in Europe

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neodemos

Pension systems

PAYG vs Funding
("Pride and Prejudice")

Europe Public hand Redistribution	US Private markets Actuarial equity
Unviable *Ponzi game* *Taxes (not contributions)* *Low returns* *Depresses savings ...*	*Help financial markets* *Disregards the needy* *Everybody for themselves* *Risky (failures, frauds)* *High managerial costs ...*

How many PAYG systems?

PAYG

- Theory
  - AIPS (Almost Ideal P.S.)
  - NDC (notional defined contr.)
  - Risk sharing
  - Def. benefit/contribution
- ≠
- Practice

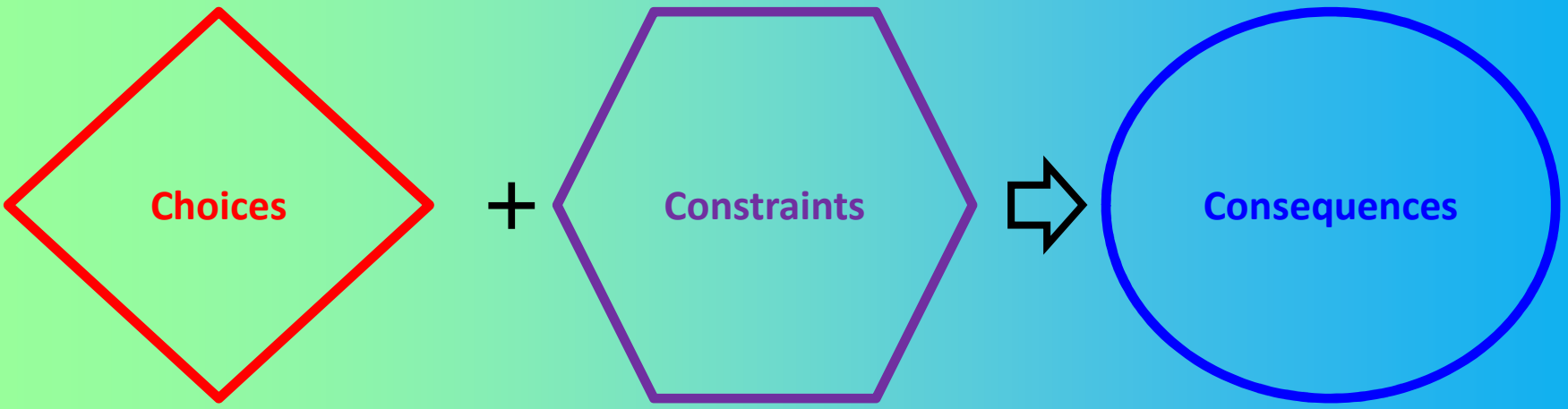
Budget balance - theory: always
practice: never

Pension benefits - theory: average
practice: individual

Exceptions - theory: never
practice: always

What is AIPS?

A system in which there are policy choices (=parameters), constraints (=exogenous variables), and consequences (=outcomes)

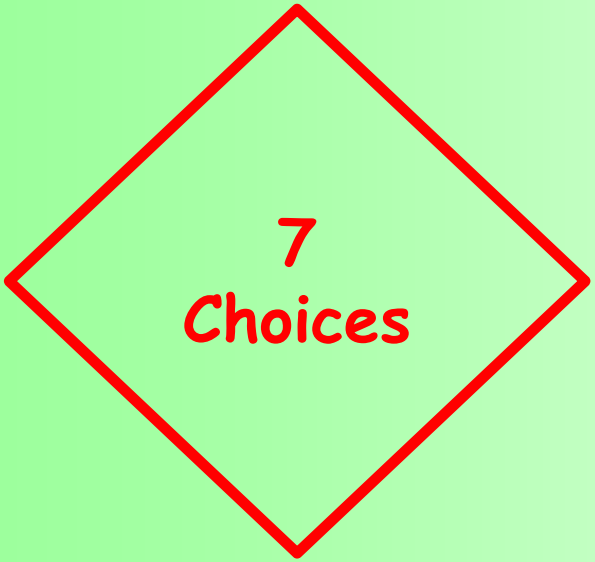


How many variables? 27, of which

(7) (6) (10)

(roughly: depends on detail)

What is AIPS (2)?



A 27-variable, complex (but not complicate) system, where theory and practice go hand in hand. This presentation will insist on practical aspects

Some choices *must* be made, on 7 dimensions

Actual choices may vary, e.g. between countries (but change over time is neither necessary nor advisable)

Policy choices (7)

#	Label	Symbol	Ex.	Notes
GROUP I - Preliminary				
1.	# of systems		1	i.e. All equal!
2.	Budget imbalance (%)		0%	
GROUP II – Demographic (target shares of life & population)				
3.	Target share of Young (%)	Y*	21%	(share of life as Y)
4.	Target share of Old (%)	O*	22%	(share of life as O)
GROUP III – Economic (a) (Benefits: how high? Relatively speaking)				
5.	Relative Child benefits (%)	χ	0%	Re to net adult wage
6.	Relative Pension benefits (%)	π	60%	Same; average
GROUP IV – Economic (b) (Bismarck vs. Beveridge? A continuum, 1-0)				
7.	Degree of actuarial equity (%)	Q	80%	

Policy choices (7)

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6.	Relative Pension benefits (%)	π	60%	Same; average
7.	Degree of actuarial equity (%)	Q	80%	

Remarks

- Policy choices are parameters (max of transparency)
- Choices **must** be made, and are free policy decisions (here: examples)
- All values are **relative**. But relative to what? Two novelties here:
  - Y* and O* are shares (%) of average life spent as young and old
  - χ and π are % of average **net adult wage** (new concept)
- **Child benefits χ** can (but need not) be introduced in the system
- **$0 \leq Q \leq 1$** (explicit choice between redistribution and actuarial equity)
  - when **Q=0** all pension benefits are equal (redistribution);
  - when **Q=1** pension benefits depend on past contributions (equity)

Constraints/ Exogenous variables (6)

#	Label	Symbol	Ex.	Notes
1.	Survival conditions (current life table)	e_0	~82	years
2.	Population total and structure		60	million
3.	No. of employed	E	23	million
4.	Average gross wage of the employed	G_e	30	€/year (.000)
5.	Contributions paid by each old	C_o	0 to 2C	€, total
6.	Average contributions paid by the old	C		€, total

Remarks

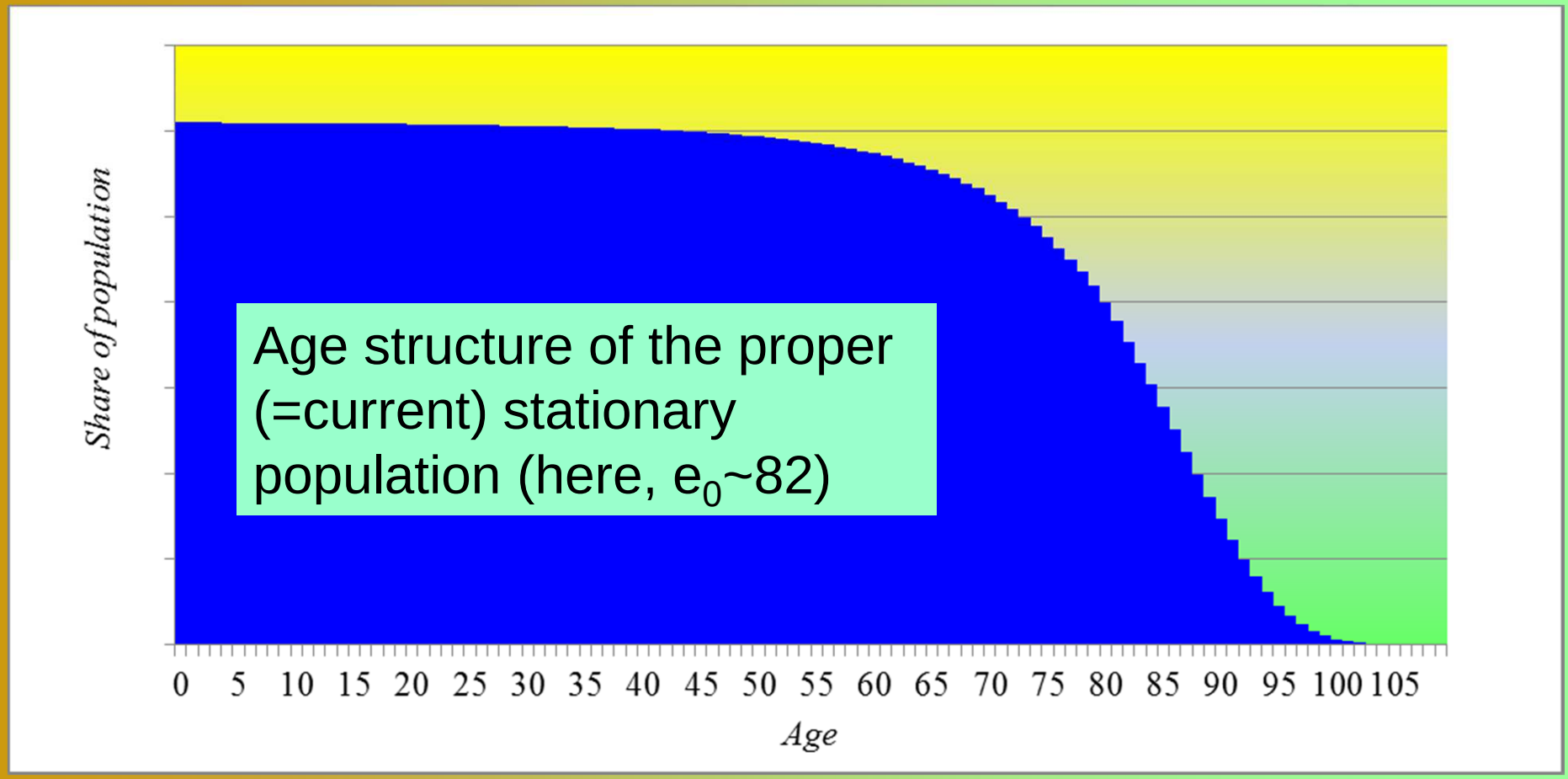
- Examples refer to Italy
- Average gross wage of the employed is just a rough approximation (taken from *Pensions at a Glance 2011*, which in turn derives it from an OECD paper by D'Addio and Immervoll. Only dependent, full time workers are included).
- Contributions **C** are total contributions paid in life, in current value
- Three examples of old persons here: with contributions that are, respectively, zero, average, and twice the average

Consequences (10)

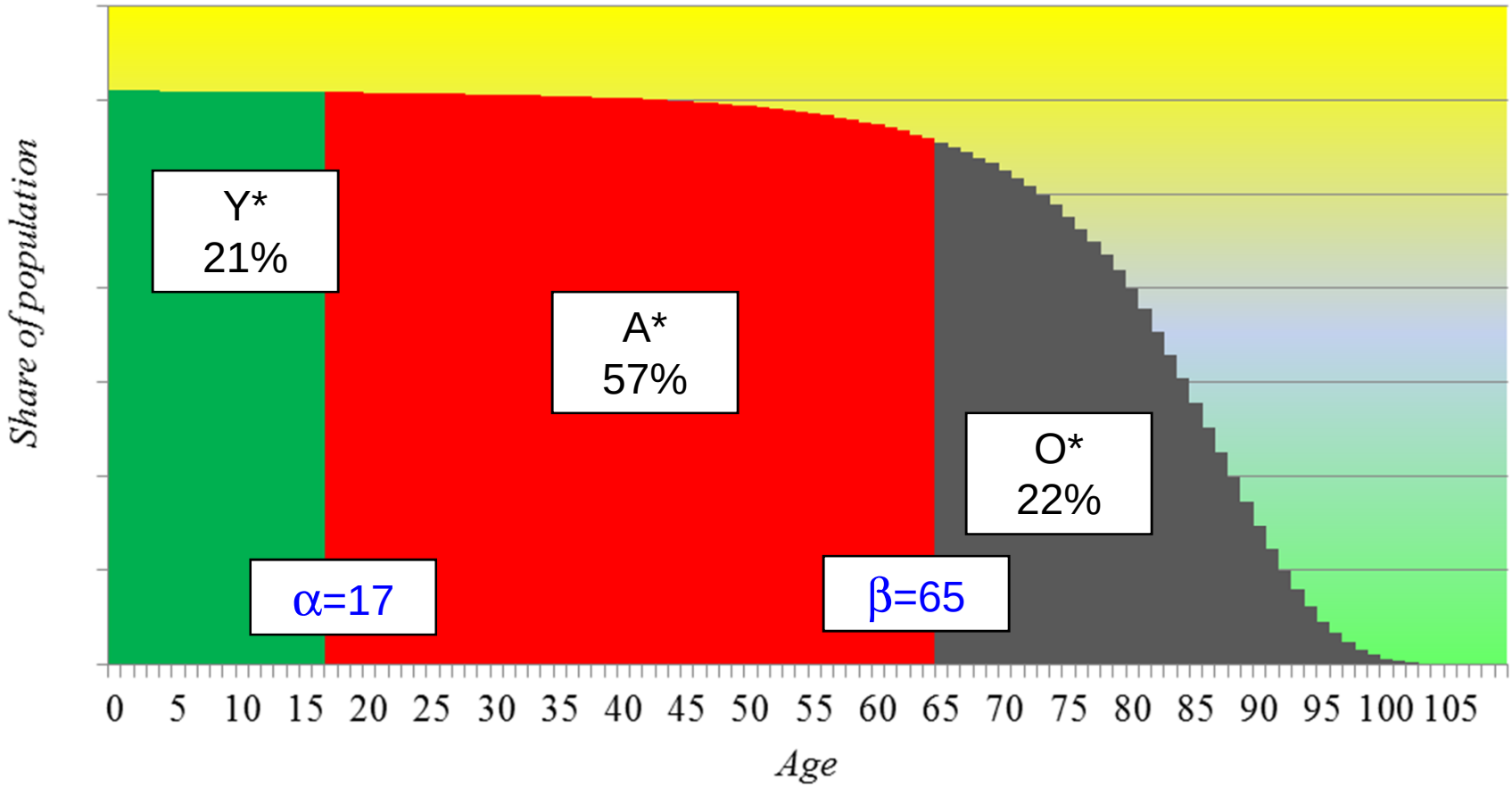
#	Label	Symbol	Ex.	Notes
1.	Threshold ages	α,β	17; 65	years
2.	Actual shares of population	Y,O	16; 20	% (targets: 21, 22)
3.	Contribution rate	c (c*)	15.8%	(18.8%)
4.	Employment rate	E/A	64	%
5.	Gross wage of the adults	G	19.2	€/year (.000)
6.	Net wage of the adults	W	15.5	€/year (.000)
7.	Child benefits	B	0.0	€/year (.000)
8.	Average pension benefits	P	9.3	€/year (.000)
9.	Individual pension (rich=2C)	P_{2C}	16.7	€/year (.000)
10.	Individual pension (poor=0)	P_0	1.9	€/year (.000)

Demographic Bonus = 3.0%

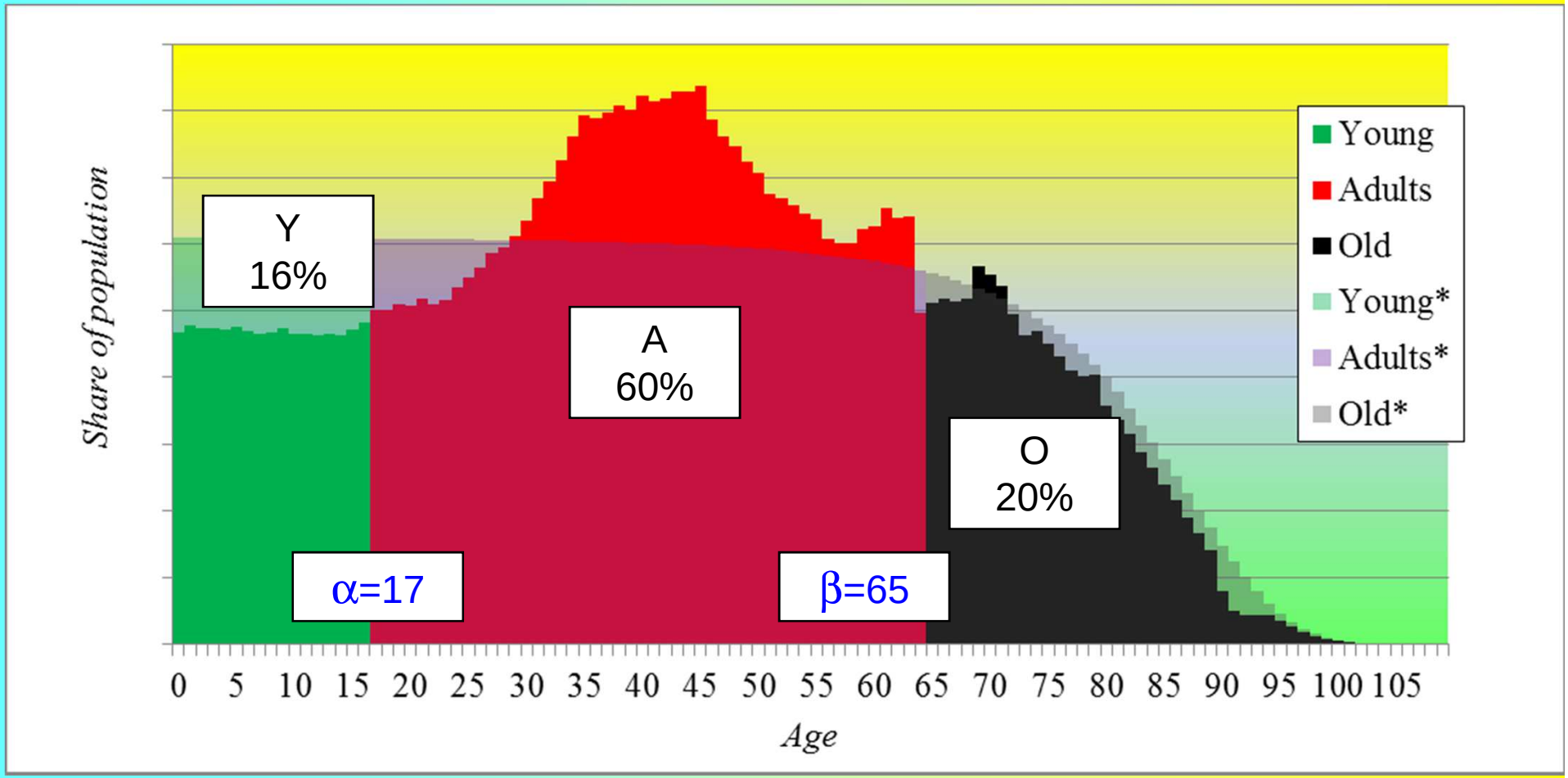
(Demographich choices)
From life table ...



(Demographic choices)
... to life shares (*) & threshold ages...



(Demographich choices)
... to actual shares



(Economic choices)

Contribution rate and average benefits

If, relative to net adult wage,

π = pension benefit and

χ = child benefit

$$c = \frac{O\pi + Y\chi}{A + O\pi + Y\chi}$$

=> $\boxed{G=G_e\ (E/A)}$ Adults' Gross wage (€)

$W=G(1-c)$ Adults' Net wage (€)

$B=W\chi$ Child benefits (€)

$P=W\pi$ Pension benefits (€)

(Economic choices)

Individual pension benefits

$$P_i = (1-Q)P + QP(C_i/C)$$

where (C_i/C) = Contribution of "i" relative to average

Minimum pension $P_{min} = (1-Q)P$

If $Q=1$, $P_i = P(C_i/C)$ (Bismarck: actuarial equity)

If $Q=0$, $P_i = P$ (Beveridge: all pensions are equal).

Individual pensions P_i are defined as deviation from the mean P. This is why budget balance is always granted.

"If anything can go wrong, it will" (Murphy's Law, #1)

Not here! All economic variations are included in

$G=G_e\ (E/A)$ Adults' Gross wage (€)

Both lower labour incomes G_e and less employment E (in times of crisis) translate into lower G (adults' gross wage), then, given c, lower W (adults' net wage), then, given π, lower P and P_i (average and individual pension).

Everybody is worse off, but equally (i.e. proportionally) so. And the system works.

"If anything just cannot go wrong, it will anyway" (Murphy's Law, #3)

As for demographic variations, the contribution rate adapts automatically to all changes

$$c = \frac{O\pi + Y\chi}{A + O\pi + Y\chi}$$

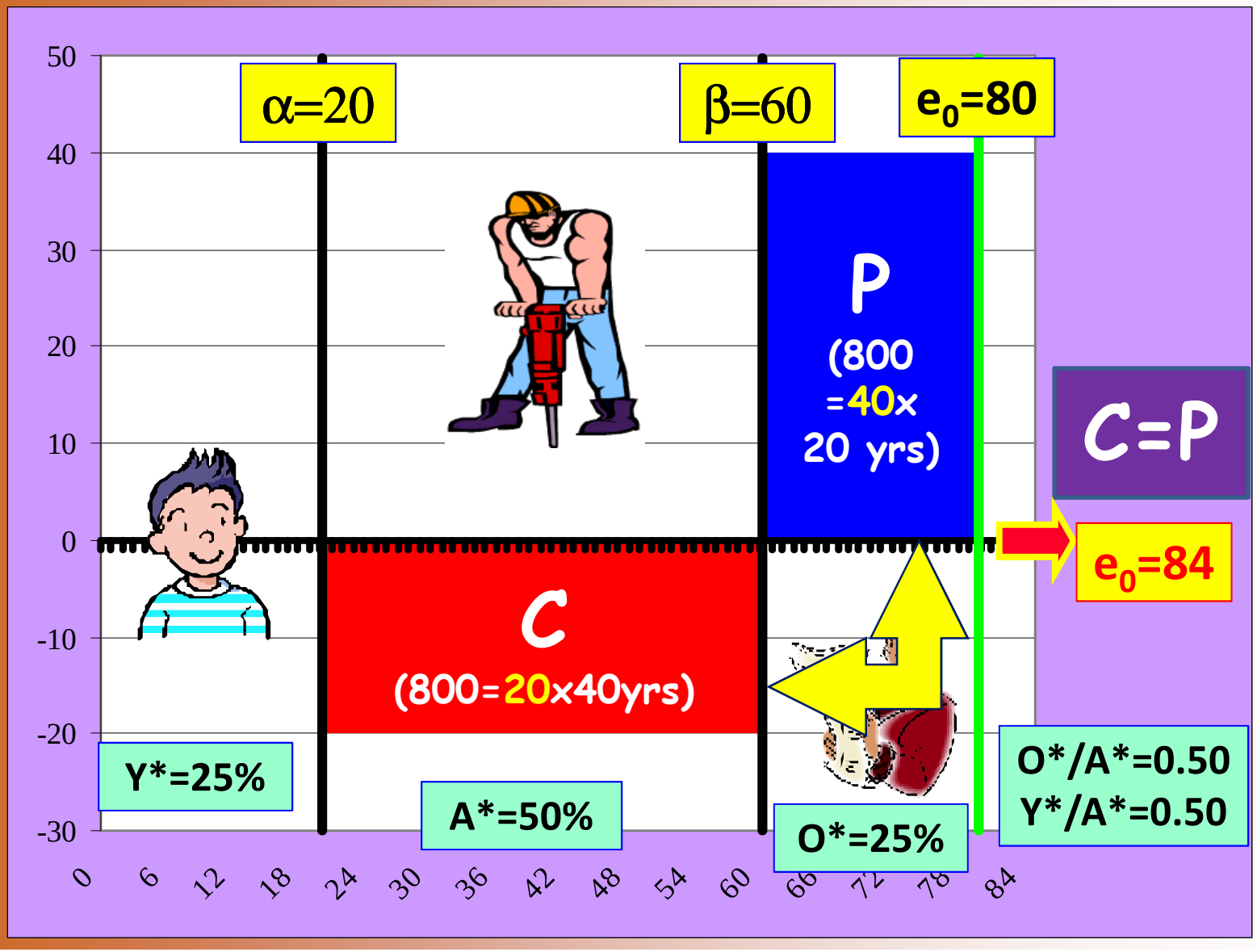
Given G (adults' gross wage), population ageing (higher O/A) translates into higher c, lower W (adults' net wage), and, given π, lower P and P_i (average and individual pension).

Once again, everybody is worse off, but equally (i.e. proportionally) so. And the system works.

"Left to themselves, things tend to go from bad to worse" (Murphy's Law, #5)

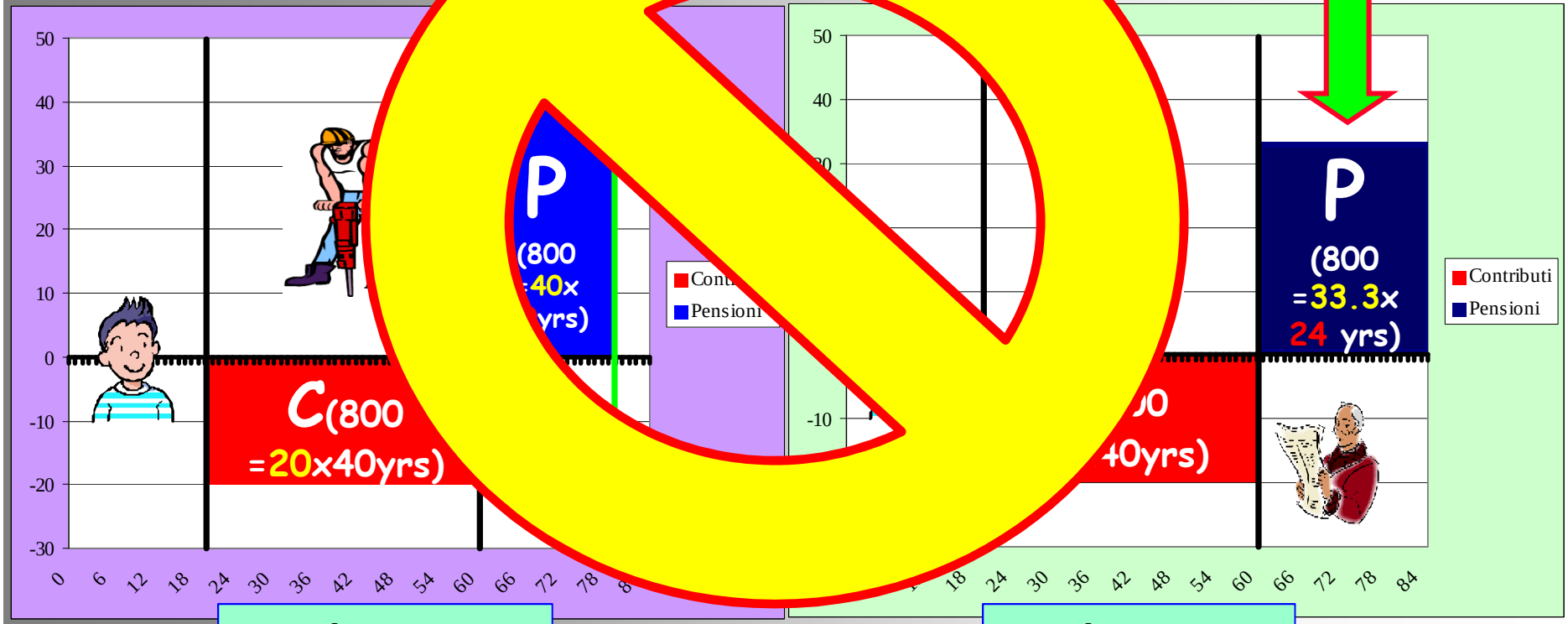
But the two main causes of population ageing are cared for, in AISP.
Longer life span is one ...

With longer lives ...



Longer life (e_0=80 to 84), same β (=60)

Option 1: ... benefits

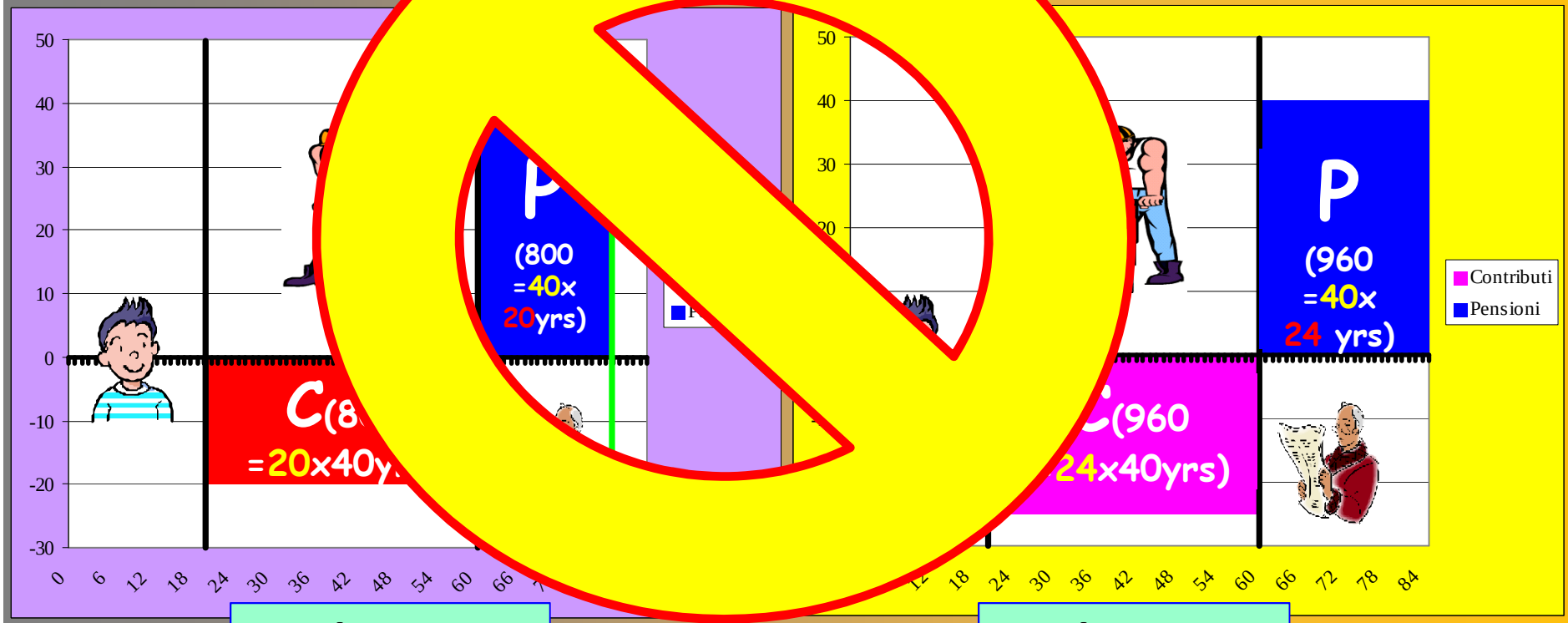


O*/A*=0.50

O*/A*=0.60

Longer life (e_0=80 to 84), same β (=60)

Option 2) [illegible] contributions



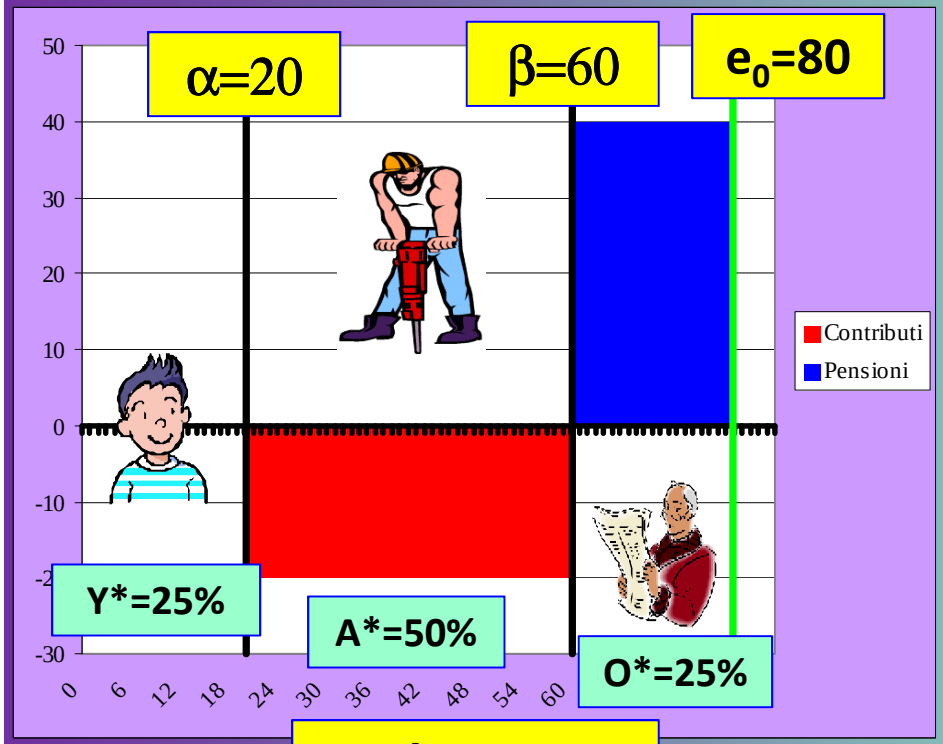
O*/A*=0.50

O*/A*=0.60

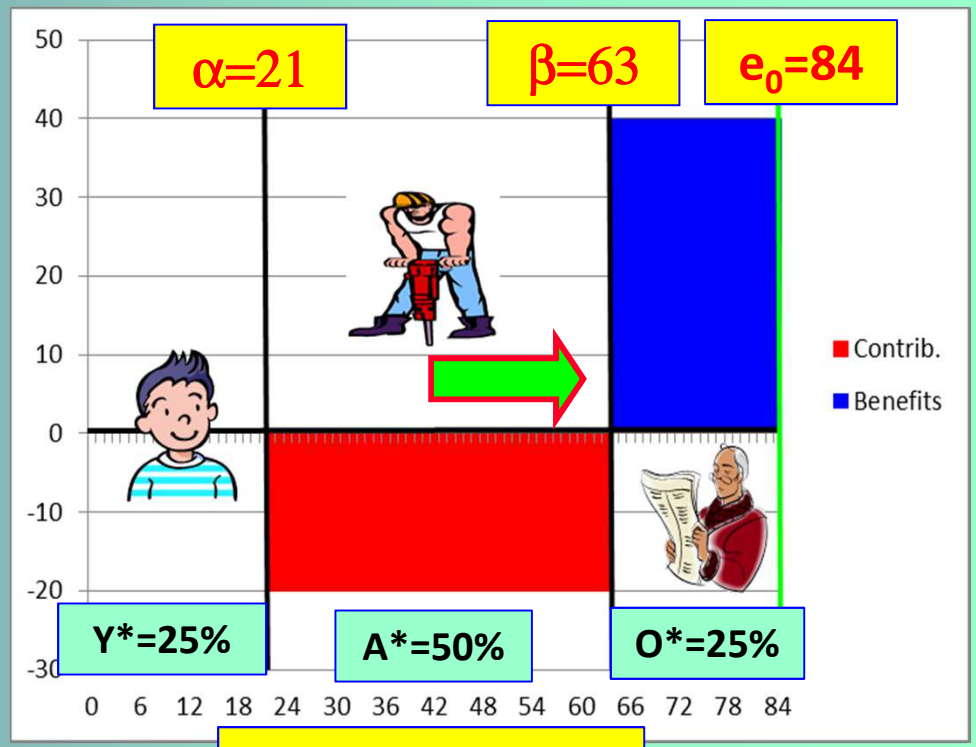
Longer life (e_0=80 to 84),

Option 3: increase in α and β

such that target shares (Y*,A*,O*) remain constant



O*/A*=0.50
Y*/A*=0.50



O*/A*=0.50
Y*/A*=0.50

"If you perceive that there are four possible ways in which something can go wrong, and circumvent these, then a fifth way, unprepared for, will promptly develop" (Murphy's Law, #4)

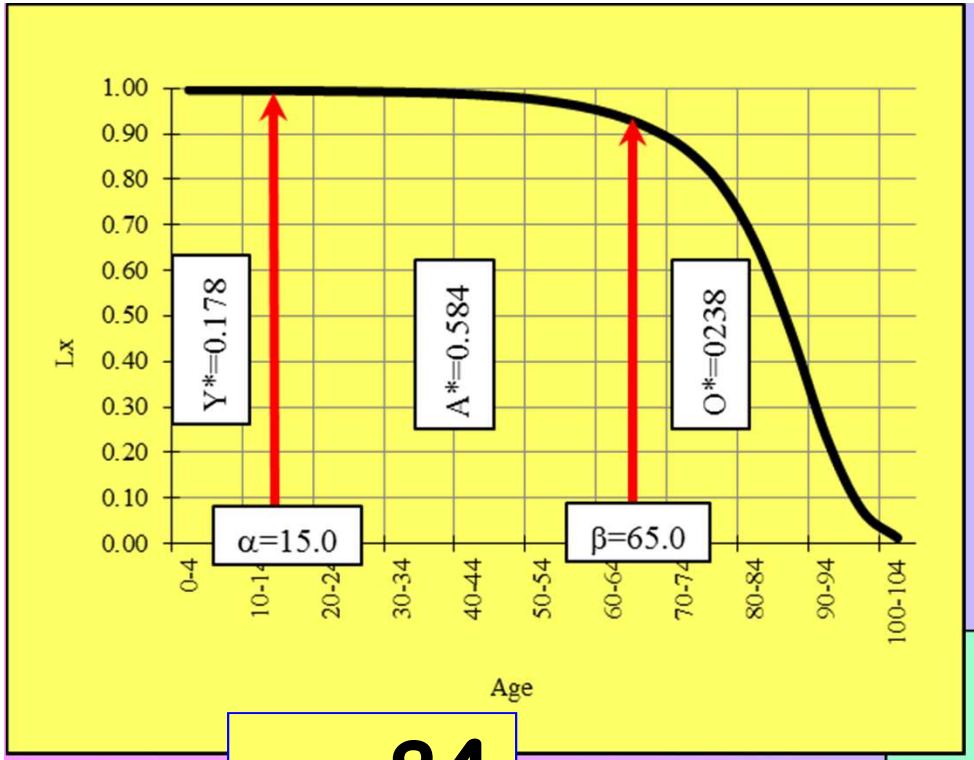
The other cause of population ageing is low fertility. **AIPS** provides a partial answer,

with χ = relative child benefit (sustains fertility, reduces oscillations of **c** around **c***, and reduces inverse redistribution – towards the rich, who outlive the poor)

$$c = \frac{O\pi + Y\chi}{A + O\pi + Y\chi}$$

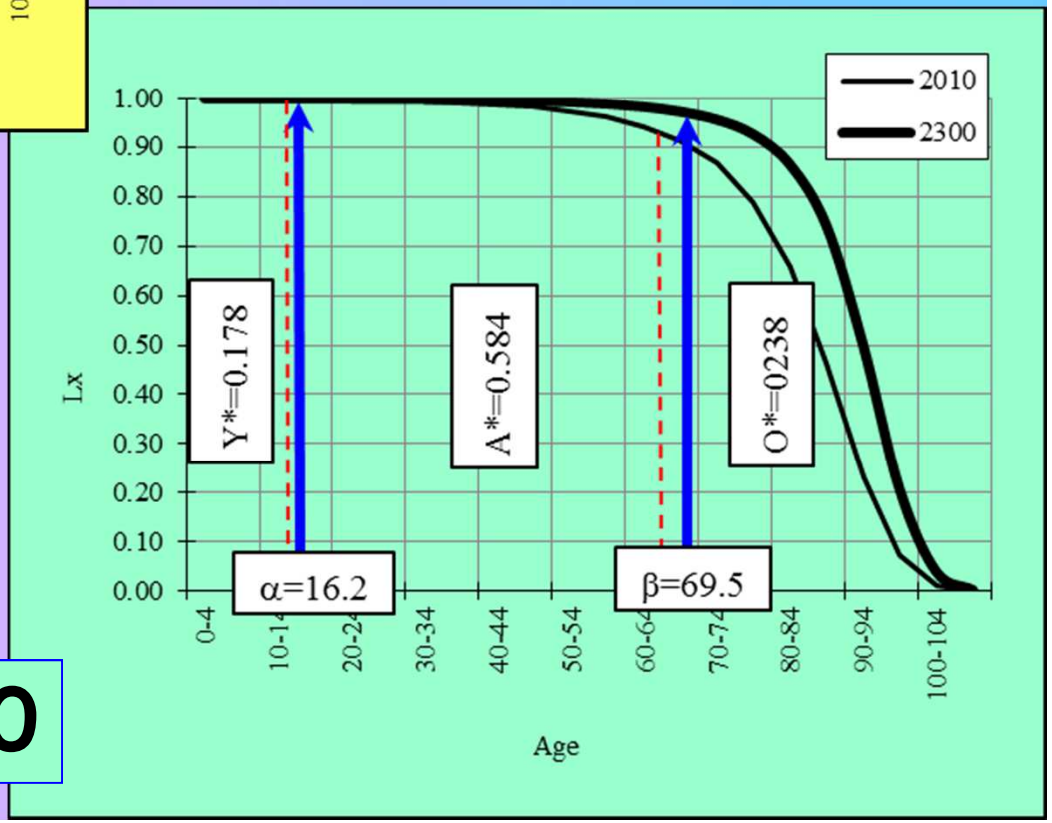
But, of course, it comes at a cost: higher **c**, or lower π (relative pension benefit) or both

Sensitivity analysis (1)



e_0=84

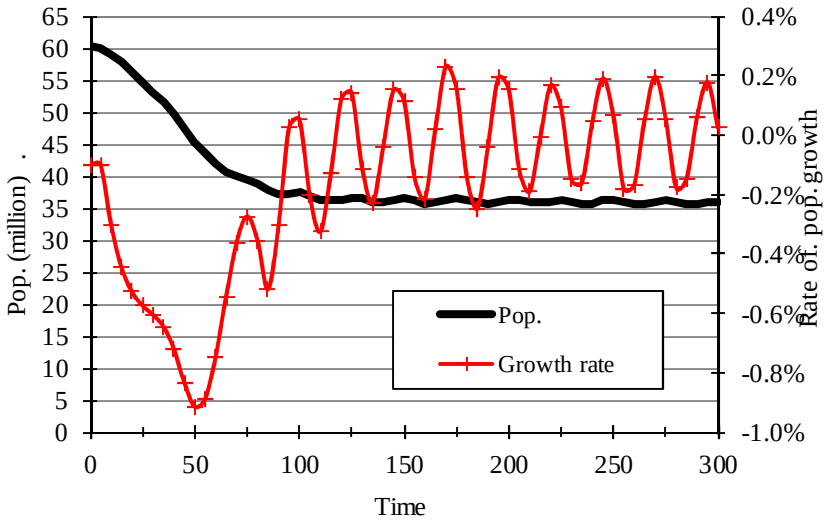
But NO forecasts are ever needed:
AIPS uses only observed values



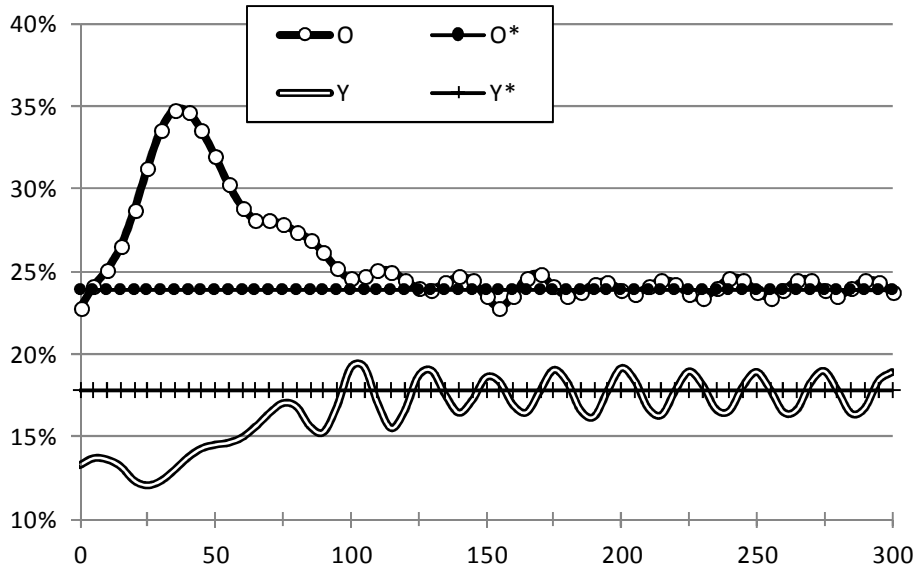
e_0=90

Sensitivity analysis (2)

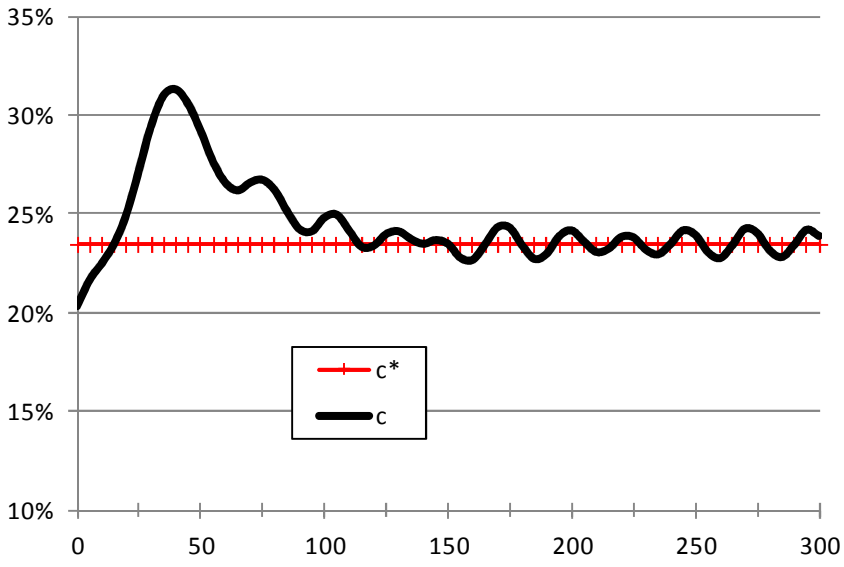
a) Population and growth rate



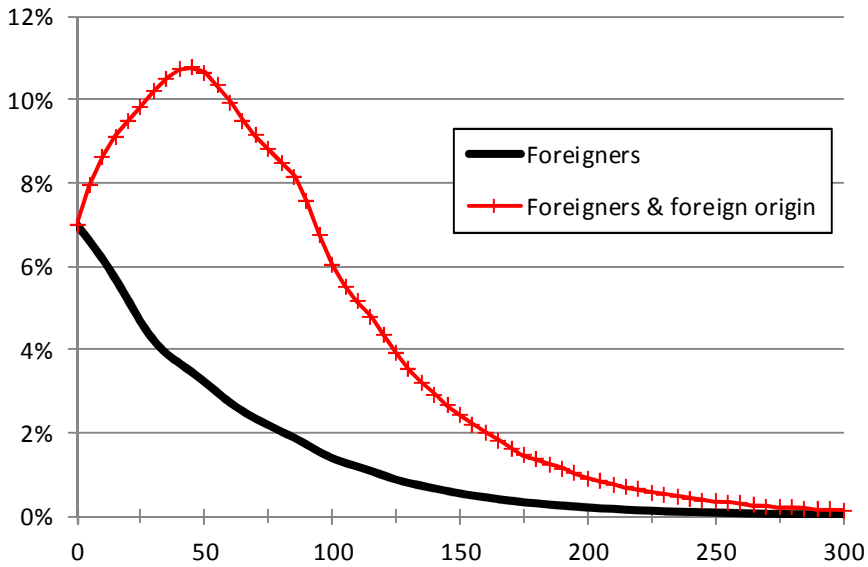
b) Share of young (Y, Y*) and old (O, O*)



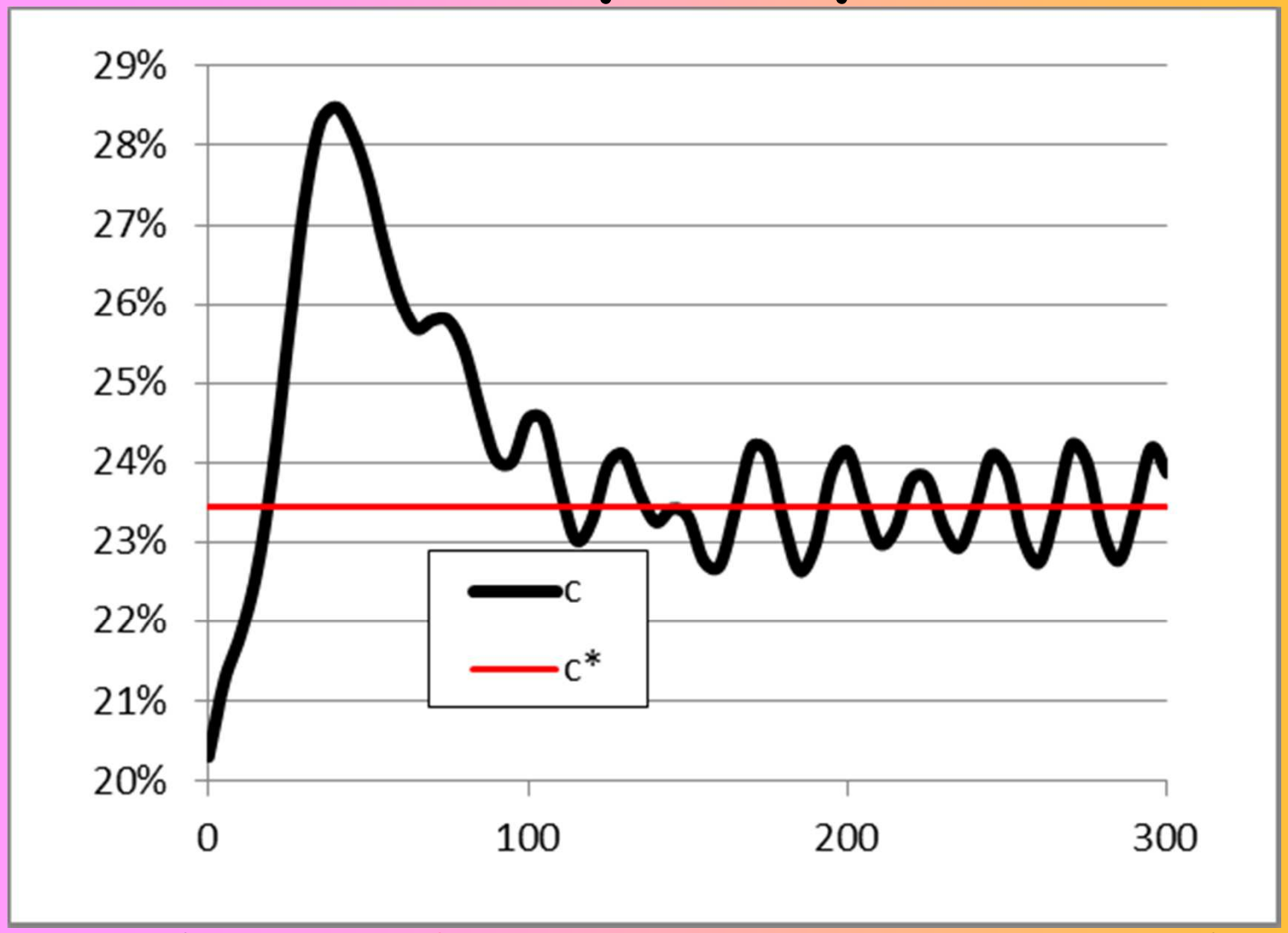
c) Equilibrium contribution rate



d) Share of foreigners



Sensitivity analysis (3)



Actual and equilibrium contribution rate, Italy.
Simulations for the next 300 years, declining migration

Did I answer the four questions?

1. How would pension systems develop in the future without reforms?

Frankly, I did not answer this. But ... "The End is Known" - if you've read Geoffrey Holiday Hall's novel (if not, do it).

Ageing, imbalances, ad hoc adjustments, higher contributions and pension age, lower benefits, "extraordinary" taxation, social unrest, ...

The literature is huge (if a bit repetitive): e.g. OECD (2011) Pensions at a Glance 2011.

Did I answer the four questions?

2. How could the pension system in Europe be re-designed in the future and what are the related challenges?

My answer is:

AIPS-Almost Ideal Pension System

Challenges are (in this order):

1) Understand and embrace the rationale (*).
2) Make the policy choices (parameters)
3) Decide how and how quickly to pass from current arrangements to the desired system

(*) My ideas have just turned 18! Cheers! They were first presented in Nov. 1994, just before the reform of the Italian pension system (1995). Now that they are of age, my ideas might as well start working a little bit (unfortunately, in Italy, work normally starts later ...)

Did I answer the four questions?

3. What would a reasonable redistribution of work look like in regard to pension systems?

With AIPS, the answer is: "It's up to you!" Virtually all the decisions on Y^*, A^*, and O^* (target shares) are viable, but of course, combined with the generosity towards the young (χ) and the old (π), they prove more or less costly (c^* and c).

With AIPS, there is no disincentive to work. On the contrary, there is a strong incentive to remain active: past age β, workers receives both their wage (W_i) and their pension (P_i).

Did I answer the four questions?

4. Policy recommendations for an effective and sustainable implementation of a redistribution of work/pension balance

Propose something credible, viable, simple (and cheap) to manage, self-contained, that can last forever (without need for change),

...

in one word: AIPS!

Just to mention one advantage, relevant variables: focus on 27 (forget the others), and remember that only 7 of these can be chosen (6 are exogeneous and 10 follow)

Did I answer the four questions?

4. Policy recommendations for an effective and sustainable implementation of a redistribution of work/pension balance

But, on a second thought, perhaps you shouldn't expect useful policy recommendations from someone whose ideas have not even been judged worthy of a rebuttal for the past 18 years

And remember Murphy's Law #6:
"If everything seems to be going well, you have obviously overlooked something".
Does this apply to AIPS, too?
If yes, I don't know what it is

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Challenges and Possibilities for Pension and Retirement Systems in Europe

Thank you

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neodemos

Advantages of AIPS?

1. Budget balance: always
2. No need for forecasts, experts, committees, ...
3. Policy decisions on only 7 (5) variables (and only 16 more are worth considering; all the others are inessential, including e.g. e_β, employment rate in old age, link between pre-retirement earnings and pension entitlements, ...). β itself for instance (retirement age) is not a policy variable: O^* is (and this determines the link between β and e_0)
4. Simple logic and arithmetic
5. Automatic and smooth adjustments over time
6. Focus on relative values (in both demographic and economic terms), which are the only ones that matter
7. Fertility can be a bit sustained (if $\chi > 0$)

Advantages of AIPS?

Not shown here

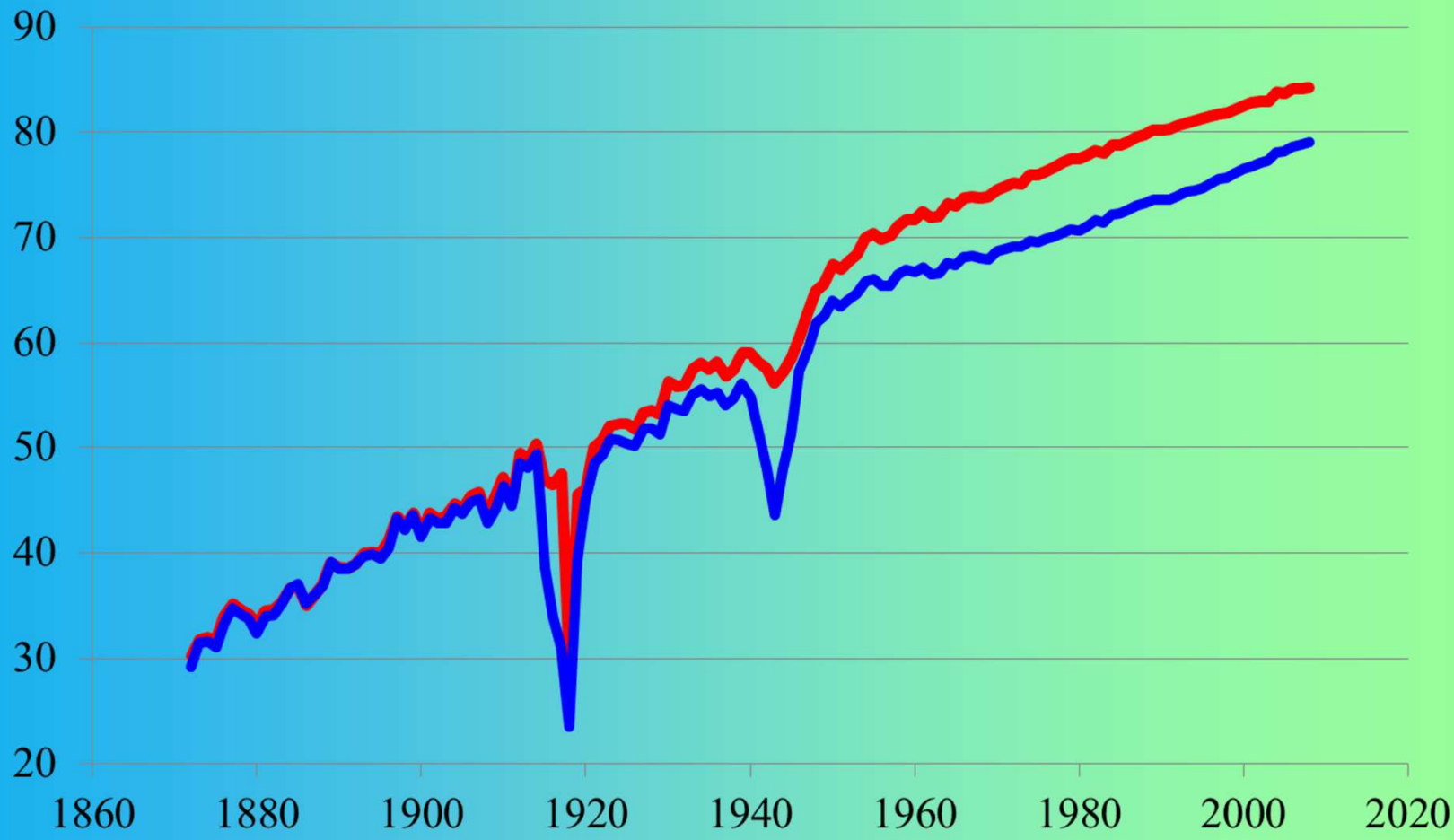
1. Intergenerational equity: fully granted
2. Intragenerational equity: more or less granted (but depends on differential life expectancy, Q and χ)
3. Redistribution towards the rich (who outlive the poor): contrasted by Q(<1) and by χ (relative child benefit).
4. Incentive to retire: absent (quite the contrary! But whatever workers do, the system works)
5. Incentive to evade contributions: low (as long as Q is high).
6. Survival pensions: no more (but spouses and partners – even same sex partners! - can be fully insured).

Why is it only *ALMOST* ideal, then?

1. Zero-sum game: people expect improvements with respect to everything, and this I cannot grant.
2. Simple but rigid (but everybody can retire when he/she pleases, and buy more flexibility with a private insurance/annuity)
3. (contribution rate) c is variable around c^*
4. No certainty as to when one can retire (β evolves with e_0), or how high his/her pension benefit will be (πW, on average)
5. Special problems in setting up the system (accumulation phase – not discussed here)

Sopravvivenza in Italia (HMD)

(e in 36 altri paesi)



Speranza di vita alla nascita, da 30 a 82 anni (1871 - 2010) (ma ora solo fino al 2008)

What do we get?

The law (and perhaps also a pension system)
is like anything else.
You get what you pay for.

(Lawyer Killian, talking to his client, in
T. Wolfe – *The Bonfire of the Vanities*)